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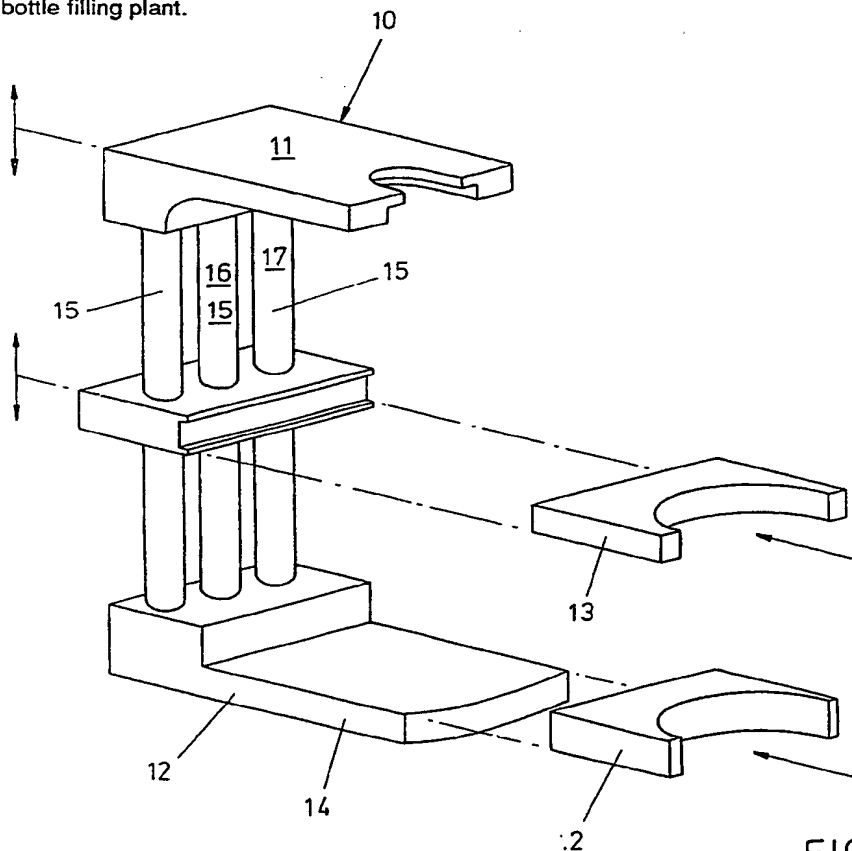
(52) UK CL (Edition L)  
**B8T TFES**

(56) Documents cited  
**GB 0809592 A US 3979011 A**

(58) Field of search  
**UK CL (Edition L) B8D DCW4, B8T TFDA TFES**  
**INT CL<sup>5</sup> B65D 23/10 25/28, B67C 3/24**  
**Online database: WPI**

**(54) Adjustable container holder**

(57) A container holding device 10 comprises at least two container locating portions 11, 12 and 13, and at least one telescopic elongate member 15 which is adjustable in height in order that the distance between the locating portions may be varied. In addition the second and third locating portions 12 and 13 may be detachable. Each elongate member 15 may comprise at least two hollow pillars. Each pillar may include a set of apertures such that a pin can pass through aligned apertures to lock the pillars together or one pillar may carry a pin and the other a slot to receive the pin (Figure 3). The device may form part of a bottle filling plant.



**FIG. 1**

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1990.

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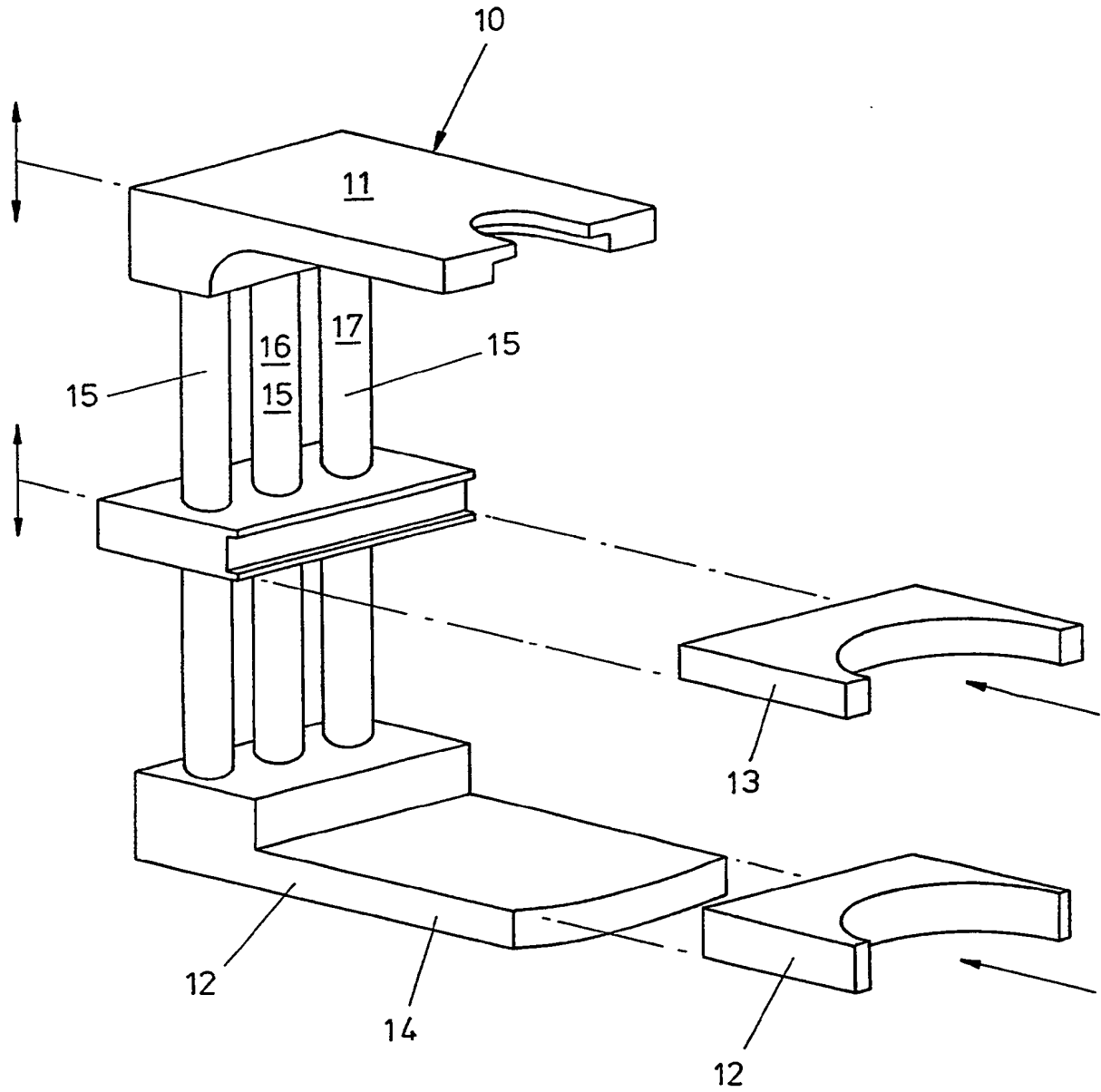


FIG. 1

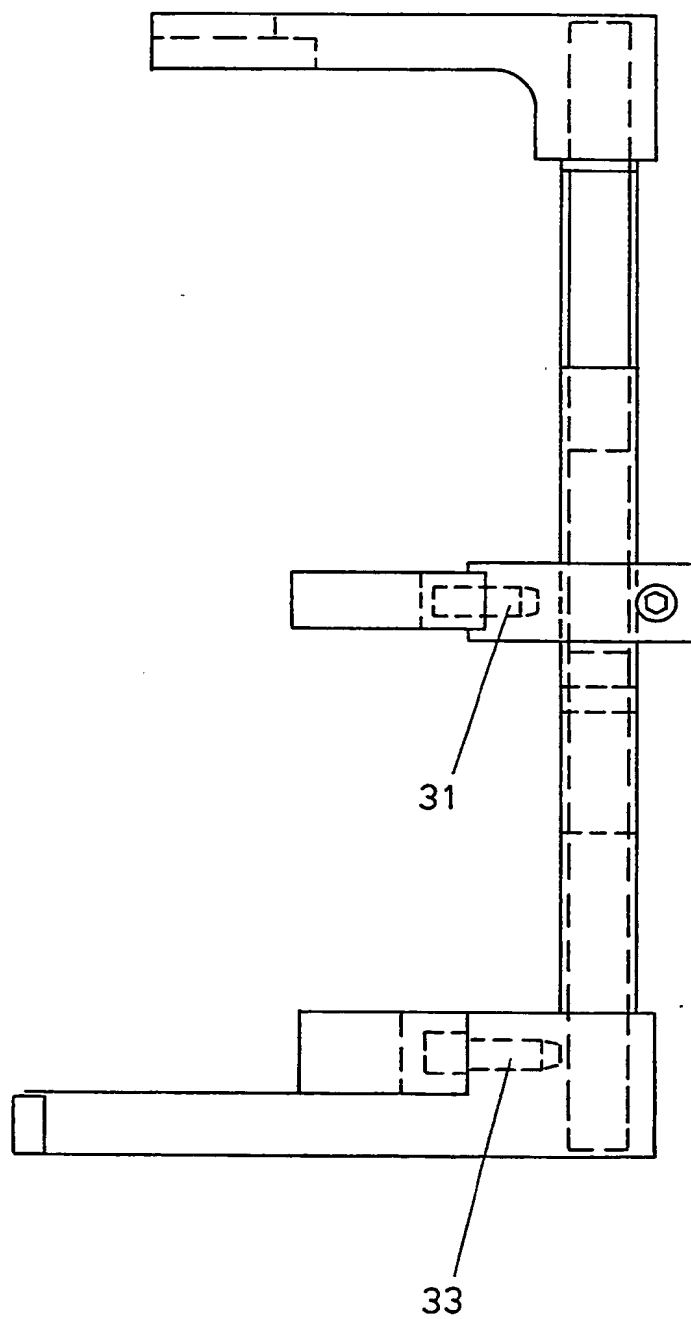


FIG. 2

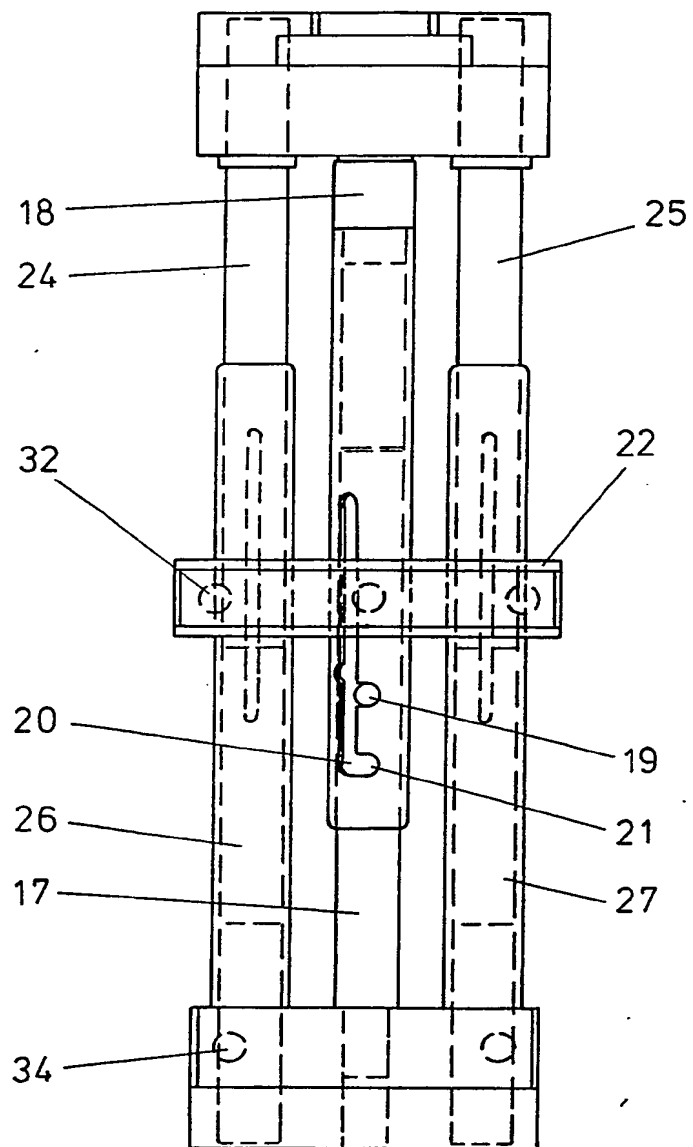


FIG. 3

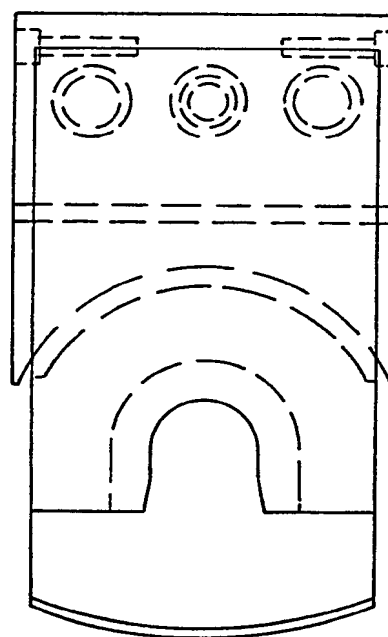


FIG. 4

## ADJUSTABLE CONTAINER HOLDER

This invention relates to a device for holding a container, and particularly, but not exclusively, to a device for holding a bottle at different stages during an automatic filling process.

Typically during the filling of bottles, for example, P.E.T. bottles, on an automatic filling machine the empty bottles are fed by a loading mechanism into container holders, which locate the bottle during the filling process. Known holders have fixed dimensions and are thus adapted to hold one particular bottle to facilitate this. Further, means for positively locating the bottle relative to the filling apparatus are required. This usually consist of means for locating the bottle at the base and at a point between the neck and the base of the container.

Apparatus for automatically filling bottles may be used to fill bottles of many different shapes and sizes.

A disadvantage of known holding devices is that it is necessary to dismantle a particular holding device, and replace it with a second holding device when different sized bottles are filled. This is because if the size of the bottle changes, it is necessary to change the dimensions of the known holding device so that, for example, the top portion of the device is aligned with the neck of the bottle.

In a bottle filling plant, a large number of holding devices are arranged on, for example, a carousel in order that each bottle arriving at the filling station of the plant can be received by a holding device. It is thus time consuming and expensive to have to dismantle and replace the holding devices.

According to the invention there is provided a device for holding a container, the device comprising:

a first bottle locating portion;

a second bottle locating portion, spaced apart from the first bottle locating portion; and

means for varying the distance between the first and second bottle locating portions.

Preferably, the first bottle locating portion is adapted to engage with the neck of a bottle to be filled and to thus support the bottle. The second bottle locating portion is adapted to engage a point towards the base of the bottle.

Due to the fact that in the device according to the present invention, it is possible to vary the distance between the first and second bottle locating portions, the device may be adapted to hold a wide range of sizes of bottles.

Preferably the means for varying the distance between the first and second bottle locating portions comprises an elongate member, and means for adjusting the height of the elongate member.

The elongate member may comprise a first hollow pillar extending from the first bottle locating portion and comprising a set of first apertures, and a second hollow pillar extending from the second bottle locating portion and having a set of second apertures, which pillars are engageable with one another, such that one pillar is positionable within the other pillar, wherein one of the first apertures may be aligned with one of the second apertures, thus allowing retaining means to pass through the two apertures, locking the first and second pillar in position.

The length of the elongate member and hence the distance between the first and second bottle locating portions, may thus be varied by aligning appropriate first and second apertures. Once the pillars have been appropriately positioned, retaining means, for example, a pin may be passed

through the aligned apertures in order to maintain the elongate member in that position.

Preferably, the elongate member comprises a first pillar extending towards the first bottle locating portion, and a second pillar extending from the second locating portion, the second pillar comprising a protruding pin, and the first pillar comprising grooves in which the pin is positionable, wherein the first and second pillars are engageable with one another, such that the second pillar is positionable telescopically within the first pillar.

The height of the elongate member may thus be varied by positioning the pin of the first pillar, in an appropriate slot in the second pillar.

Advantageously, the first pillar is moveable relative to the second pillar by means of the intermediate joining portion, joining the first and second pillars to one another.

Advantageously, the intermediate portion is adapted to receive a third bottle locating portion, which portion is adapted to engage the bottle at a point between the neck and the base.

Conveniently, the first, second and third bottle locating portions are detachable from the device, in order that different shapes of bottle locating portions may be positioned on the device, according to the size of bottle to be held.

Preferably, the device also comprises two further elongate members extending from the first bottle locating portion to the second bottle location, and each having variable length.

The invention will now be further described by way of example only, with reference to the accompanying drawings in which:

Figure 1 is a schematic perspective view of a device according to a first aspect of the invention;

Figure 2 is a schematic representation of a side view of the device of Figure 1;

Figure 3 is a schematic representation of the device of Figure 1 view the front; and

Figure 4 is a schematic representation of the device viewed from above.

Referring to the figures, a bottle holding device according to the present invention is designated generally by the reference numeral 10. The device comprises a first bottle locating portion 11, which is adapted to support and locate the neck of a bottle to be filled. The device further comprises a second bottle locating portion 12 adapted to engage a portion of a bottle towards the base of the bottle. A third bottle locating portion 13 is positioned to engage an intermediate portion of a bottle, between the neck and the base.

The device further comprises three telescopic elongate members 15 which are adjustable in height, in order that the distance between the first and second bottle locating portions 11, 12 may be varied to suit the size and shape of bottles currently being filled in the automatic filling process.

The telescopic members 15 serve to support the first second and third bottle locating portions.

The bottle locating portions 12 and 13 are detachable from the main body of the device 10, such that the shape of the locating portions 12 and 13 may be chosen appropriately from a set of differently shaped portions 12 and 13 to suit the



dimensions of the bottles currently being processed.

The height of the elongate members 15 may be adjusted in any known manner. In the present example, the middle elongate portion 16 comprises a first pillar 17 which extends from the base portion 14 of the device 10, and a second pillar 18 which extends towards the first bottle location portion 11. The pillar 17 is positionable within the pillar 18. In addition, the pillar 17 comprises a protruding pin 19, whereas the pillar 18 comprises a slot configuration 20 comprising a plurality of pin receiving portions 21. The pin 19 is positionable within any one of the pin receiving portions 21. The pillars 17, 18 are positioned appropriately, to give the required distance between the first and second bottle locating portions 11, 12. The appropriate height is fixed by positioning the pin receiving portion 21. An intermediate portion 22 in the form of a cross brace is also adapted to receive a third bottle locating portion 13. The remaining elongate members 15, 17 also comprise first pillars 24, 25 which are engageable within second pillars 26, 27 respectively.

Thus, the distance between the first and second bottle locating portions is set by means of the central telescopic member 16, which acts as a distance piece.

The pillars 24, 25 may be used to locate the appropriate first bottle locating portion 11, which portion comprises apertures within which the pillars 24, 25 may be located. The third bottle locating portion 13 is located in the cross brace 22 by means of pins 31 which are snap fittable within holes 32, within the intermediate portion 22.

Similarly, the second bottle locating portion 12 is locatable within the base 12 of the device 10, by means of pins 33 which are locatable within holes 34 in the base 12.

The appropriate bottle locating portions 12, 13 will be chosen from a set comprising several differently sized and shaped portions 12 and 13.

The invention is particularly suitable for holding a bottle during an automatic bottle filling process, where it is important to be able to positively locate the bottle relative to parts of the filling apparatus.

Although the locating portion 11 in the illustrated embodiment is not detachable from the device 10, it is envisaged that in other embodiments the locating portion 11 would be detachable, in order to accommodate bottles having different neck sizes.

However, the invention is also applicable to other uses where it is required to hold a container.

## CLAIMS

1. A device for holding a container, the device comprising:
  - a first bottle locating portion;
  - a second bottle locating portion spaced apart from the first bottle locating portion; and,
  - means for varying the distance between the first and second bottle locating portions.
2. A device according to Claim 1 wherein the first bottle locating portion is adapted to engage with the neck of a bottle to be filled and thus to support the bottle.
3. A device according to Claim 1 or Claim 2 wherein the second bottle locating portion is adapted to engage a point towards the base of the bottle.
4. A device according to any one of the preceding claims wherein the means for varying the distance between the first and second bottle locating portions comprises an elongate member, and means for adjusting the height of the elongate member.
5. A device according to Claim 4 wherein the elongate member comprises a first hollow pillar extending from the first bottle locating portion and comprising a set of first apertures, and a second hollow pillar extending from the second bottle locating portion and having a set of second apertures, which pillars are engageable with one another such that one pillar is positionable within the other pillar, wherein one of the first apertures may be aligned with one of the second apertures, thus allowing retaining means to pass through two apertures locking the first and second pillar in position.
6. A device according to Claim 5 wherein the retaining means comprises a pin.
7. A device according to Claim 4 wherein the elongate member comprises a first pillar extending towards the first bottle locating portion, and a second pillar extending from the second bottle locating portion, the second pillar

comprising a protruding pin, and the first pillar comprising grooves in which the pin is positionable, wherein the first and second pillars are engageable with one another such that the second pillar is positionable telescopically within the first pillar.

8. A device according to Claim 7 wherein the first pillar is movable relative to the second pillar by means of an intermediate joining portion joining the first and second pillars to one another.

9. A device according to Claim 8 wherein the intermediate portion is adapted to receive a third bottle locating portion, which portion is adapted to engage the bottle at a point between the neck and the base.

10. A device according to Claim 9 wherein the first, second and third bottle locating portions are detachable from the device in order that different shapes of bottle locating portions may be positioned on the device according to the size of bottle to be held.

11. A device according to any one of Claims 7 to 10 further comprising two further elongate members extending from the first bottle locating portion to the second bottle locating portion, each having variable length.

12. A device substantially as hereinbefore described with reference to the accompanying drawings.

**Patents Act 1977**  
**Examiner's report to the Comptroller under**  
**Section 17 (The Search Report)**

Application number

GB 9204168.0

**Relevant Technical fields**

(i) UK Cl (Edition L ) B8T (TFES,TFDA) B8D (DCW4)

(ii) Int Cl (Edition 5 ) B67C 3/24; B65D 23/10, 25/28

**Databases (see over)**

(i) UK Patent Office

(ii) ONLINE DATABASE: WPI

**Search Examiner**

LINDA HARDEN

**Date of Search**

8 MARCH 1993

Documents considered relevant following a search in respect of claims 1-12

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 809592 (CROWN CORK) - see Figure 2 and page 2 lines 78-119	1-3, 10
X	US 3979011 (SCHLEICHER) - see Figures 2, 5 and 6	1-4, 7



Category	Identity of document and relevant passages	Relevant to claim(s)

#### Categories of documents

**X:** Document indicating lack of novelty or of inventive step.

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